

MALES OF THE GENUS *HYLEMYA* SENS. LAT.  
FROM NORTH AMERICA, HAVING DORSAL  
BRISTLES ON MID METATARSUS, WITH  
DESCRIPTIONS OF NEW SPECIES,  
(MUSCIDAE, DIPTERA).

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(Continued from the December issue)

*Hylemya* (*Delia*) *setiseriata* n. sp.

Male; blackish, parafacials with whitish or silvery pruinescence, antennae black and palpi brownish, proboscis lightly dusted, subshining. Presutural region of mesonotum grayish and when viewed from behind with three well marked vittae, which become less pronounced on the darker blackish postsutural region, scutellum blackish. Abdomen grayish pruinulent with blackish anterior tergal incisures and well defined dorsocentral series of subtriangular marks, hypopygium subshining. Legs black. Wings densely brownish basad; calypterae whitish, knobs of halteres dull yellow and stalks purplish.

Eyes separated at narrowest width of frons by a distance about equal to diameter of anterior ocellus; parafrontals contiguous caudad, with 3 to 5 pairs of slender bristles on cephalic half; width of parafacials at base of antennae about three fourths breadth of third antennal segment, width of cheeks about equal to that of parafacials at base of antennae, and well maintained caudad. Arista minutely pubescent, and thickened basad. Mesonotum with a well developed middle pair of presutural acrostical bristles, and with one or two weaker presutural pairs, prealar bristle shorter than posterior notopleural bristle, sternopleurals arranged 1 : 2. Abdomen depressed, sides subparallel, tapering caudad, processes subparallel (not divergent), widely spaced apart at base, inner half bare except for 3 or 4 blunt black preapical spinules on inner margin and one or two robust bristles at apical margin, bristles confined to outer (dorsal) border. Fore tibia with 1 mid and a bluntish apical posteroventral bristle; mid femur with weakish bristles on proximal half of anteroventral surface, becoming much shorter and setulose on distal half, posteroventral surface with an evenly spaced series of 6 to 8 erect bristles on proximal three fifths, mid tibia with 1 anterodorsal, 1 posterodorsal, 2 posteroventral bristles, all short; hind femur with antero- and posteroventral series of bristles extending from apex to proximal half, bristles becoming weaker and

shorter proximad, the preapical posteroventral bristles longer than height of femur, hind tibia with 5 or 6 anteroventral and anterodorsal bristles, 3 posterodorsal, posteroventral surface with an extensive series of weaker bristles, becoming longer and series replicated proximad. Mid metatarsus with a dorsal series of longish setae. Wings with *m-cu* cross vein erect.

Female brownish, markings more obscure on mesonotum and less pronounced on abdomen; caudal pair of ocellar bristles slender and directed outward, lower bristle of caudal pair of sternopleurals weak, mid femur weakly bristled on posteroventral surface, mid tibia in allotype with a mid anteroventral bristle, robust anterodorsal and weak posteroventral bristles, hind femur bare on posteroventral surface, hind tibia with 3 or 4 anteroventral and anterodorsal bristles. Otherwise similar to male except for sexual characters.

Holotype and allotype: ♂, ♀, Ilwaco, Washington, V.5.18 (A. Spuler. [U.S.N.M.] Paratypes: ♂, Ilwaco, Washington, IV.2.18 (A. Spuler). ♂, Loon Lake, Washington, V.16.24. (A. L. Melander). ♂, Ogden, Utah, VI.14.37 (D. E. Hardy).

The holotype and allotype of *setiseriata* are I consider slightly teneral, having frons, parafacials and cheeks reddish, thereby differing from the darker color of mature specimens. The species has the habitus of *H. inconspicua* Hockett and *pilifemur* Ringdahl, males of which lack the dorsal series of bristles on mid metatarsus.

#### ***Hylemya (Delia) simulata* n. sp.**

Male closely resembling *cilicrura* Rond., differing essentially in the structure of the genitalia and copulatory appendages, and by the absence of a short apical bristle on inner margin of processes of fifth abdominal sternum (figs. 1-3). Mid tibia with mid posterodorsal bristle lacking. Mid metatarsus with a well developed series of dorsal bristles, hind tibia with a partial restricted series of weak posteroventral bristles. Length, 4.5 mm.

Holotype: ♂, West Yellowstone, Montana, VIII.3.50 (Dreisbach & Schwab). [U.S.N.M.] Paratypes: 2 ♂, 11 miles North of W. Springs, Idaho, VIII.3.50 (Dreisbach & Schwab). ♂, Edmonton, Alberta, VI.2.36 (E. H. Strickland. [C.N.C.] ♂, Cloudcroft, New Mexico, VI.27.40 (R. H. Beamer). [Univ. Kans.]

The above specimens closely resemble those of *Hylemya segmentata* (van der Wulp), the types of which I was able to examine at the British Museum (Natural History) a few years ago through the courtesy of Dr. van Emden, but without the specimens before me and despite my notes I am unable to draw more definite com-

parisons. The male of *simulata* has all the superficial appearance of a hybrid of *cilicrura* and *liturata*, possessing the hind femoral character of the former and the mid metatarsal bristling of the latter. As in certain male specimens of *liturata* the mid tibia in all the above specimens lacks a mid posterodorsal bristle, and as in examples of *cilicrura* the hind femur may possess a few spurious posteroventral bristles and hind tibia only a partial series. However all specimens of *cilicrura* that I have seen with a restricted series of posteroventral bristles on hind tibia lacked the dorsal series of mid metatarsal bristles. I have concluded that *simulata* merits specific recognition on grounds of differences in structure of male copulatory appendages. In the study of this species I wish to acknowledge the generous and ever helpful advice of Mr. J. E. Collin, who kindly undertook a critical examination of several specimens of doubtful identity.

**Hylemya (*Delia*) vesicata** n. sp.

Male; grayish black, antennae and palpi black, proboscis lightly pruinulent, mesonotum subshining and with trace of three vittae, abdomen cinereous gray pruinulent with uniformly narrow dorso-central vitta. Legs slate black, pulvilli tinged; wings tinged, denser basad, calypterae yellowish, halteres yellow.

Eyes separated at narrowest width of frons by a distance equal to width of third antennal segment, interfrontalia uninterrupted caudad, a pair of parafrontal setulae adjacent anterior ocellus, parafacials and cheeks broad, fully as wide and high respectively as length of third antennal segment, the latter slightly longer than second segment, arista hairs about as long as basal diameter of arista. Mesonotum and scutellum setulose, with three irregularly paired presutural acrostical bristles in two closely adjacent series, prealar bristle long, basal pair of scutellar bristles and dorsal bristle of mesopleural series longish, sternopleurals arranged 1:2. Abdomen cylindricoconical, slightly depressed basad, hypopygium appressed within fifth segment, cerci partitioned and appearing as two roundish knobs, from each of which arises a fascicle of slender black setae, the tips of which extend to base of abdomen. Fore tibia with 1 or 2 median slender and a stout apical bristle on posteroventral surface; mid tibia with 3 to 5 posteroventral, 2 bristles on proximal half and 2 at apex of posterodorsal surface, all as long as posteroventral bristles of mid femur, mid anterodorsal bristle absent; hind femur with anteroventral series of bristles extending to prebasal region, the bristles becoming shorter on proximal half, posteroventral surface with or without fine short bristles on distal

half, hind tibia with 8 to 10 anteroventral, 7 to 9 anterodorsal, 4 or 5 posterodorsal bristles, and a continuous series of posteroventral setulae from prebasal to preapical region. Second fore tarsal segment swollen on anterior surface, fifth fore tarsal segment with three stiff apical bristles; mid metatarsus more or less setose on dorsal surface, mid tarsal segments 2, 3 and 4 broadened and with long apical thorns on posterior surface. Cross vein *m-cu* oblique and sinuate. Length 9 mm.

Female paler than male, more densely grayish pruinose, abdominal dorsocentral marks ill defined or suppressed; eyes at narrowest width of frons more widely separated than distance between first pair of dorsocentral bristles, cruciate bristles well developed, interfrontalia with several accessory setulae; two pairs of pre-sutural acrostical bristles. Fore tibia with 2 anterodorsal, with or without mid posterior bristle; mid tibia with or without a weak mid anteroventral bristle, with 2 strong anterodorsal, remaining bristles shorter than in male; hind femur with a series of weak setulose bristles on distal half of posteroventral surface, hind tibia with 4 to 6 anteroventral, 6 or 7 anterodorsal, 3 or 4 posterodorsal bristles; fore and mid tarsal segments normal. Otherwise similar to male except for sexual characters. Length 10 mm.

Holotype and allotype: ♂, ♀, Dana Meadows, Tuolumne County, California, VII.17.49 (L. L. Jensen). [Univ. Calif.] Paratypes: ♂, Tuolumne Meadows, California, VII.1.40 (R. H. Beamer), ♂, North Powder, Oregon, VII.13.31 (J. Nottingham). [Univ. Kans.] ♀, Minam Lake, Wallowa Mountains, 7,700 ft. alt., Oregon, VII.24.49 (C. L. Cooper).

The male of *vesicata* may be readily distinguished from its congeners by the swollen anterior surface of segment 2 and the stiff apical bristles on segment 5 of fore tarsus. In addition the male possesses twin fascicles of very long spreading setae arising from cerci and unusually long bristles on mid tibia. The mid metatarsus in the above male specimens is marked by a coarse series of longish setulae, which although prominent has not the bristlelike serial character typical of *liturata*.

#### *Hylemya (Delia) alaba* (Walker)

*Anthomyia alaba* Walker, List Dipt. Brit. Mus., IV: 948, 1849.

*Hylemyia innocua* Malloch, Trans. Amer. Ent. Soc., XLVI: 186, 1920.

The male of *alaba* may be readily distinguished from its allies by the unusually long slender bristles spreading out from margin of

cerci.<sup>5</sup> Six of twelve male specimens before me lack the mid metatarsal bristling. In the remaining specimens the bristling is vestigial or rudimentary, as is apparent in the type at the British Museum (Natural History).<sup>6</sup>

I have seen specimens of *alaba* from Alaska, Alberta, British Columbia, Massachusetts, Michigan, New Hampshire, New Mexico, New York, Nova Scotia, Ontario, Quebec, Vermont, Washington, Wisconsin, Wyoming.

*Hylemya (Delia) armata* (Stein)

*Chortophila armata* Stein, Arch. f. Naturgesch., (1918) LXXXIV A (9): 87, 1920.

The male of *armata* has a black unmarked mesonotum and deep brownish abdomen with decided lustrous reflections, a polished proboscis, and wings that in mature specimens are brownish tinged, densely so basad. The type of *armata*, taken on Mount Constitution, Washington, is devoid of bristles on posteroventral surface of hind femur, whilst in males recorded from Rowdy Creek, Smith River, California, there are a few irregular weak bristles on distal half.

I have seen specimens of *armata* from Alaska, Alberta, British Columbia, California, Colorado, Washington (type).

*Hylemya (Delia) attenuata* Malloch

*Hylemyia attenuata* Malloch, Trans. Amer. Ent. Soc., XLVI: 188, 1920.

I have seen only three male specimens of this species, two from California including the type, and one from Alberta. The slender male of *attenuata* may be readily recognized by the dilated mid tarsal segments 2, 3 and 4, with their elongated curved apical thorns on posterior surface. Both cross veins of the wings in type are obscurely clouded.

*Hylemya (Delia) curvipes* Malloch

*Hylemyia curvipes* Malloch, Trans. Amer. Ent. Soc., XLIV: 316, 1918.

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<sup>5</sup> Hockett, H. C. 1924. A systematic study of the Anthomyiinae of New York, with especial reference to the male and female genitalia. Mem. 77 N. Y. (Cornell) Agr. Exp. Station, (1923) figs. 5, 56.

<sup>6</sup> Hockett, H. C. 1934. Notes on Francis Walker's type-specimens of North American anthomyid flies in the British Museum, (Muscidae, Diptera). Canad. Ent., LXVI p. 133.

The male of this small species may be readily distinguished by the abnormal extra length possessed by hind legs, the femora of which are curved or bowed upwards; the hind tibia is extensively setulose on both antero- and posteroventral surfaces; the inner margin of each process of fifth abdominal sternum has a prominent black apical spinule directed ventrad.

I have seen specimens of *curvipes* from Alberta, British Columbia, Georgia, Illinois (types), Indiana, Kansas, Manitoba, Maryland, Michigan, New Brunswick, New York, Quebec.

*Hylemya (Delia) fabricii* (Holmgren)

*Aricia fabricii* Holmgren, Öfversigt af Kongl. Vetenskaps.-Akademiens Förhandlingar, (1872) XXIX (6): 101, 1873.

The male of *fabricii*, in my opinion, may be distinguished from such closely related forms as *propinquina* and *garretti* by the structure and bristling of the cerci. In *fabricii* the cerci tapers narrowly to its apex and the setulae likewise are gradually reduced to minute hairs.<sup>7</sup>

I have seen specimens of *fabricii* from Alaska, Colorado, Greenland (types), Manitoba, Montana, Ontario, Oregon, Quebec.

*Hylemya (Delia) garretti* Hockett

*Hylemyia garretti* Hockett, Canad. Ent., LXI: 117, 1929.

The males of *garretti* and *propinquina* are much alike, and evidently both are akin to *fabricii*. I differentiate the male of *garretti* from the two others by the smaller cordate cerci and by the denser longer setulae at apex. In both *garretti* and *propinquina* the ventral border of tergum 9 (anal sclerite) is less conspicuously setulose than in *fabricii*, and the posterior apical thorns of mid tarsal segments 3 and 4 more conspicuously developed.

I have seen males of *garretti* from Alaska, British Columbia (types), California, Colorado, Manitoba, Washington.

*Hylemya (Delia) gracilipes* Malloch

*Hylemyia gracilipes* Malloch, Trans. Amer. Ent. Soc., XLVI: 187, 1920.

The type of *gracilipes* lacks the typical dorsal series of mid metatarsal bristles, and only in one specimen, from Washington, have I found this character fully developed. In the majority of specimens, including paratypes, the dorsal bristles are poorly developed, being few and restricted proximad. The tibiae of the male of

<sup>7</sup> Ringdahl, O. 1949. loc. cit., p. 50, fig. 2.

*gracilipes* range in color from yellow to completely fuscous, and frequently the pairs, from front to rear, become successively paler or increasingly testaceous.

I have seen males of *gracilipes* from Alberta, British Columbia, Colorado, Montana (types), Oregon, Washington, Wyoming, Yukon Territory.

*Hylemya (Delia) ineptifrons* Hockett

*Hylemya (Delia) ineptifrons* Hockett, Proc. Ent. Soc. Wash., LIII (5): 58, 1951.

I have seen only two male specimens of *ineptifrons*, and in these the dorsal setae on mid metatarsus are arranged in coarse series and vary in degree of development. The species is related to *setiventris* Stein, being distinguished in both sexes by the robust apical posterodorsal bristle on hind tibia, and in the male by the dichoptic eyes and in the structure and bristling of fourth abdominal sternum.

The species is known to me by the original series from Idaho, Nevada, Utah, Washington.

*Hylemya (Delia) liturata* (Meigen)

*Anthomyia liturata* Meigen, Syst. Besch., VII: 329, 1838.<sup>8</sup>

*Aricia florilega* Zetterstedt, Dipt. Scand., IV: 1555, 1845.<sup>9</sup>

*Chortophila trichodactyla* Rondani, Atti Soc. Ital. Sci. Natur., IX: 164, 1866.

The male of *liturata* may be readily distinguished from allied forms by the uninterrupted series of short erect bristles throughout the distal half of posteroventral surface of hind femur, and by the invariably extensive series of semierect setulae on the same surface

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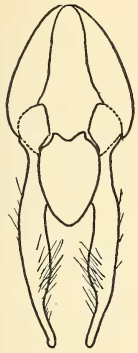
EXPLANATION OF PLATE III

Male copulatory appendages, showing dorsal and lateral aspects of abdominal tergum 9 with bristles removed, ventral aspect of sternum 5.

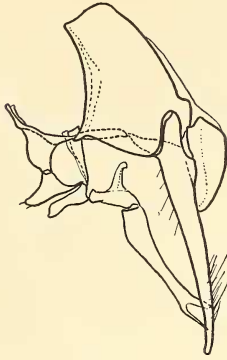
Figures 1, 2, 3. *Hylemya (Delia) simulata* new species. Figures 4, 5, 6. *Hylemya (Delia) liturata* (Meigen). Figures 7, 8, 9. *Hylemya (Delia) cilicrura* (Rondani). Figures 10, 11, 12. *Hylemya (Delia) sancti-jacobi* (Bigot).

<sup>8</sup> teste Séguy, E. 1937. Genera Insectorum, Fasc. 205 p. 100.

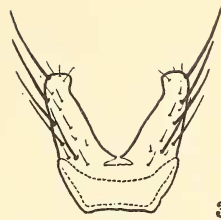
<sup>9</sup> teste Ringdahl, O. 1939. Opus. Entom., IV (3-4): 148.



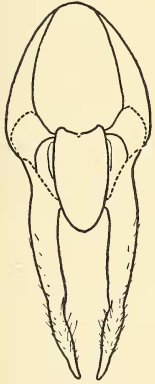
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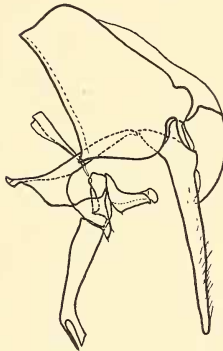
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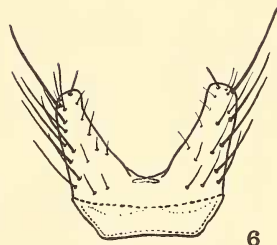
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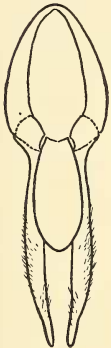
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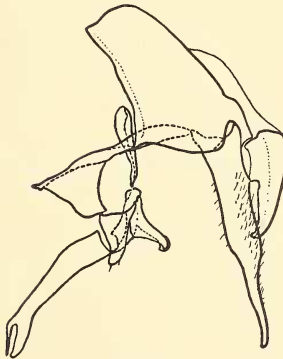
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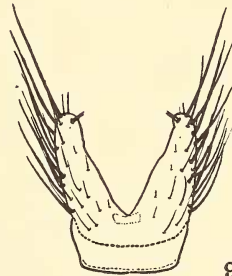
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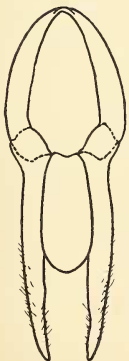
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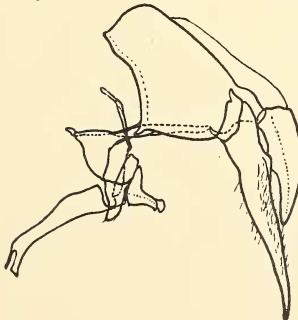
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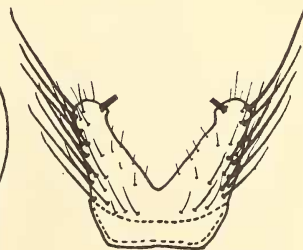
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12



of hind tibia. Stein<sup>10</sup> has cited the South American species *Anthomyia sancti-jacobi* Bigot as a synonym of *C. trichodactyla* Rondani, but with this I hesitate to agree after examining a male of *sancti-jacobi* identified by Mr. Collin and compared with Bigot's type, and after seeing specimens determined by Malloch from the British Museum (Natural History), kindly furnished by Dr. van Emden. In the case of the latter, one of the specimens has an uneven series of weak miscellaneous bristles along distal half of posteroventral surface of hind femur that I do not consider indicative of the character as possessed by *liturata*; in the other specimen the posteroventral surface of hind femur is bare except for a single (spurious) short bristle at middle of one of the femora. The copulatory appendages of Collin's specimen are illustrated in figures 10-12.

I have seen specimens of *liturata* from Alaska, Colorado, Maine, Michigan, New Hampshire, New Mexico, New York, Nova Scotia, Ontario, Oregon, Quebec, Washington, Wisconsin.

*Hylemya (Delia) neomexicana* Malloch

*Hylemyia neomexicana* Malloch, Trans. Amer. Ent. Soc., XLVI: 310, 1920.

The male of *neomexicana* normally does not possess a dorsal series of setae on mid metatarsus. I have seen however an aberrant specimen taken by Mr. C. B. D. Garrett at Keremeos, British Columbia, on June 17,, 1923, in which this character was fully developed.

I have seen typical specimens of *neomexicana* from Alberta, British Columbia, California, Colorado, Idaho, Montana, New Mexico (type), Oregon, Utah, Washington, Wyoming.

*Hylemya (Delia) propinqua* Hockett

*Hylemyia propinqua* Hockett, Canad. Ent., LXI: 118, 1929.

The species *propinqua* closely resembles *fabricii*, the male differing in my opinion from the latter by the longer setulae at apex of cerci, sparser setulae along ventral border of ninth tergum (anal sclerite), and by longer apical thorns on posterior surface of mid tarsal segments 3 and 4.

I have seen males of *propinqua* from Alberta (types), British Columbia, Idaho, Montana, Oregon.

<sup>10</sup> Stein, P. 1907. Revision der Bigot'schen und einiger von Macquart beschriebenen aussereuropäischen Anthomyiden. Zeitschr. f. System. Hymen. u. Dipt., VII (4): 286.

*Hylemya (Delia) setitarsata* Huckett

*Hylemyia setitarsata* Huckett, Mem. 77 N. Y. (Cornell) Agr. Exp. Sta., (1923) p. 32, 1924.

The male of this small species may be readily recognized by the setulose character of dorsal surface of hind tarsus, and by the presence of numerous bristles on distal half of mid tibia.

I have seen specimens of *setitarsata* from Georgia, Massachusetts, Michigan, New Brunswick, New York (types), Wisconsin, all collected in April or May except one specimen taken in early June.

*Hylemya (Delia) setiventris extensa* Huckett

Proc. Ent. Soc. Wash., LIII (5): 257, 1951.

In the few male specimens of *setiventris extensa* that I have seen the mid metatarsus has a coarse series of moderately long dorsal setae which I consider of sufficient prominence to warrant the inclusion of this subspecies in this study. The male of *extensa* differs from that of *setiventris* in that the fourth abdominal sternum is more deeply emarginate and the tips of apical bristles on the sternal lamellae extend beyond apex of abdomen.

I have seen specimens of *setiventris extensa* from Alaska (types), California, Idaho, Montana, Oregon, Washington.

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**Parasites on Quail.**—A collection of parasites from quail was received from W. Blair Low of Las Vegas, Nevada. The specimens all were taken in southern Nevada. Mr. Low indicated that the ticks were from birds collected in a *Covania-Juniperus* plant association at 4,000 feet elevation. Dr. F. C. Bishopp reported the material to consist of 13 larvae of the fowl tick, *Argas miniatus* Koch, slightly to 2/3 engorged. In addition, one larva of *Ixodes* species was taken. Hippoboscidae from quail were collected at Gord Springs, Lincoln County, Nevada, December 12, 1950. These were identified by Dr. A. Stone as *Stilbometopa impressa* (Bigot).—G. F. KNOWLTON, Logan, Utah.